

Pacific Pests, Pathogens and Weeds - Online edition

Peanut southern blight (011)

Common Name

Southern blight, Athelia wilt

Scientific Name

Athelia rolfsii, the sexual state of the fungus. It is also known by the asexual state, *Sclerotium rolfsii*. The sexual stage (Diagram) is rarely seen.

Distribution

Asia, Africa, North, South, and Central America, the Caribbean, Europe, Oceania. *Athelia rolfsii* is recorded from Australia, Fiji, French Polynesia, Guam, New Caledonia, New Zealand, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu. The disease on peanuts is recorded in Australia, Fiji, New Caledonia, Papua New Guinea, Solomon Islands, Tonga, and Vanuatu.

Hosts

The fungus has a wide host range. It is common on carrot, beans, cucurbits, capsicum, peanut, sweetpotato, taro, giant taro, and other aroids, tomato, and weeds.

Symptoms & Life Cycle

When the cottony growth of the fungus comes into contact with susceptible roots, leaves or stems, direct penetration occurs, but the fungus can also infect through wounds. It produces chemicals that cause soft rots in 2-4 days after infection. When the soft rots girdle the stem, the foliage wilts (Photos 1&2) and death of the plant follows soon after. The fungal growth can easily be seen with the naked eye (Photos 1-5).

About 7 days after infection, the cottony growth begins to form sclerotia (Photo 3). These are 0.5-2 mm diameter and made up of tightly packed strands of the fungus. They are white turning light brown as they mature. Sclerotia keep the fungus alive when there are no plants to infect, remaining alive for several years in soil or potting mix. Other than sclerotia, the fungus can survive between crops in the remains of plants. The life cycle is given below (Diagram).

Spread over short distances is by growth of the fungus through the soil; spread over long distances is by movement of infected plant material and infested soil. Wind carries soil containing the sclerotia.

Impact

This soilborne fungus causes important diseases. It usually infects the lower stem near the soil surface. On peanut, the first sign of the disease is a wilt of a single leaf and, soon after, the wilt of the entire plant. During warm wet weather the fungus spreads from plant to plant, and the damage can be considerable. Sclerotia develop in the cottony growth on the stem (Photo 3). On sweetpotato, cuttings are destroyed at planting (Photo 2) and later as mature vines (Photo 4). Root of giant taro (*Alocasia*) are attacked and plants fall over (Photo 5)

Detection & inspection

Look for the thick white cottony growth at soil level and the presence of sclerotia. Look for plants that have wilted suddenly.



Photo 1. Cottony growth of *Athelia rolfsii* at the base of a peanut plant causing leaves to wilt.



Photo 2. Wilt of sweetpotato cutting soon after planting caused by *Athelia rolfsii*.



Photo 3. Cottony growth of *Athelia rolfsii* on a peanut stem, with many light brown mature sclerotia, and others developing.



Photo 4. Roots and base of the stem of capsicum plants attacked and destroyed by southern blight, *Athelia rolfsii*.

Management

CULTURAL CONTROL

The fungus has a large number of hosts so crop rotation is not a practical option. However, bananas appear resistant to infection, and maize, cassava, yam and cabbages are little affected. The following measures are important:

Before planting:

- Avoid land where there is a previous history of this disease.
- Check that plants taken from a nursery are free of the fungus.
- Treat the soil with lime; in Samoa, white coral sand has been suggested for both tomatoes and peanuts. This is best done together with ample supply of well decomposed chicken manure.

During growth:

- Remove infected plants with soil around the roots as soon as they start to wilt, taking care not to spread the fungus by dropping soil/sclerotia onto other plants.
- If a mulch is needed, use coconut leaves.

After harvest:

- Collect and remove plant debris and burn or bury it deeply.
- Where possible, plough the land deeply, or at least turn over the soil to bury the sclerotia: sclerotia do not survive for more than 45 days if buried 20-30 cm, and burying deeply also speeds up the decay of the fungus in the plant remains.
- Rotate with the crops listed above if land becomes infested with the fungus.

RESISTANT VARIETIES

There are no reports of resistant varieties of peanuts, beans and tomatoes, and the many other crops that are susceptible to the disease.

CHEMICAL CONTROL

Many fungicides have been recommended for the control of *Athelia rolfsii*, but they are either not available and/or too expensive for use in Pacific island countries.



Photo 5. Cottony growth of *Athelia rolfsii* on mature vines of sweetpotato.



Photo 6. Roots of *Alocasia* attacked and killed by *Athelia rolfsii* causing the plant to fall over.

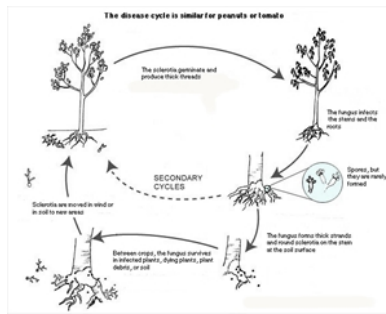


Diagram. Life cycle of *Athelia rolfsii*.

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Information from (and Diagram) Mullen J (2006) Southern blight. Southern stem blight. White mold. The Plant Health Instructor. The American Phytopathological Society. (<https://www.apsnet.org/edcenter/diseasediagnosis/pdlessons/Pages/SouthernBlight.aspx>); and *Athelia rolfsii*. Wikipedia. (https://en.wikipedia.org/wiki/Athelia_rolfsii); and CABI (undated) Athelia rot. Plantwise Knowledge Bank. (<https://www.plantwise.org/knowledgebank/datasheet/49155#DistributionSection>); and from MacKenzie E (2013) *Athelia rolfsii*. PaDIL - <http://www.padil.gov.au>; Atlas of Living Australia (undated) *Athelia rolfsii* (Curzi) C.C.Tu & Kimbr. (<https://bie.ala.org.au/species/18134a8d-21cd-4542-bf73-83400f2dd12d>). Photo 4 Mani Mua, SPC, Sigatoka Research Station, Fiji.

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